

We Claim:

1. A circuit for control of an output current in an active biological control reaction system, comprising:
  - a first column select transistor, the first column select transistor being adapted for control by a column selector,
  - a first row select transistor, the first row select transistor being adapted for control by a row selector, the first select transistors being connected in series to each other and between a node and a first supply,
  - an output connected to the node,
  - a second column select transistor, the second column select transistor being adapted for control by a column selector, and
  - a second row select transistor, the second row select transistor being adapted for control by a row selector, the second select transistors being connected in series to each other and between the node and a second supply.
2. The circuit of claim 1 for control of an output current in an active biological control reaction system wherein the output is directly connected to the node.
3. The circuit of claim 1 for control of an output current in an active biological control reaction system wherein the row select transistors and the column select transistors are field effect transistors.
4. The circuit of claim 1 for control of an output current in an active biological control reaction system wherein the first and second row select transistors are CMOS transistors.
5. The circuit of claim 1 for control of an output current in an active biological control reaction system wherein the first and second column select transistors are CMOS transistors.

6. The circuit of claim 5 for control of an output current in an active biological control reaction system wherein the channel length of the column select transistors is larger than the channel length of the row select transistors.

5 7. The circuit of claim 1 for control of an output current in an active biological control reaction system further including a first test transistor spanning the first supply and the node.

10 8. The circuit of claim 7 for control of an output current in an active biological control reaction system wherein the first test transistor is adapted for control by a test signal.

15 9. The circuit of claim 8 for control of an output current in an active biological control reaction system further including a second test transistor spanning the second supply and the node.

20 10. The circuit of claim 9 for control of an output current in an active biological control reaction system wherein the second test transistor is adapted for control by a test signal.

11. The circuit of claim 1 for control of an output current in an active biological control reaction system wherein the first supply is  $V_{cc}$ .

25 12. The circuit of claim 1 for control of an output current in an active biological control reaction system wherein the second supply is ground.

30 13. The circuit of claim 1 for control of an output current in an active biological control reaction system wherein the first and second column select transistors are controlled under application of a gate voltage from a column shift register memory.

14. The circuit of claim 1 for control of an output current in an active biological control reaction system wherein the first and second row select transistors are controlled under application of a gate voltage from a row shift register memory.

5 15. A circuit for control of an output current in a multiple unit cell array, comprising:

an array of unit cells arranged in rows and columns, wherein each unit cell comprises:

10 a column select transistor, the column select transistor being adapted for control by a column selector;

a row select transistor, the row select transistor being adapted for control by a row selector, the column select transistor and the row select transistor being connected in series to each other and between an output node and a first supply; and

15 a return electrode.

16. The circuit of claim 15, wherein each unit cell further comprises:

a second column select transistor, the second column select transistor being adapted for control by a column selector;

20 a second row select transistor, the second row select transistor being adapted for control by a row selector, the second column select transistor and the second row select transistor being connected in series to each other and between the output node and a second supply.

25 17. The circuit of claim 15 wherein the return electrode is another unit cell.

18. The circuit of claim 16 wherein the first supply is Vcc.

30 19. The circuit of claim 16 wherein the second supply is ground.

20. The circuit of claim 16 wherein the row select transistors and the column select transistors are field effect transistors.

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